Military Engineer Contribution to Operational Art: The Hybrid Threat Environment

A Monograph

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AY 2015-001

REPORT DOCUMENTATION PAGE

Form Approved
OMB No. 0704-0188

1. REPORT DATE *(DD-MM-YYYY)*	**2. REPORT TYPE**	**3. DATES COVERED** *(From - To)*
22-05-2015	Master's Thesis	JUN 2014 – MAY 2015

4. TITLE AND SUBTITLE
Military engineer contribution to operational art: The hybrid threat environment.

5a. CONTRACT NUMBER

5b. GRANT NUMBER

5c. PROGRAM ELEMENT NUMBER

6. AUTHOR(S)
MAJ James B. Pence

5d. PROJECT NUMBER

5e. TASK NUMBER

5f. WORK UNIT NUMBER

7. PERFORMING ORGANIZATION NAME(S) AND ADDRESS(ES)
U.S. Army Command and General Staff College
ATTN: ATZL-SWD-GD
Fort Leavenworth, KS 66027-2301

8. PERFORMING ORG REPORT NUMBER

9. SPONSORING / MONITORING AGENCY NAME(S) AND ADDRESS(ES)
Advanced Military Studies Program.

10. SPONSOR/MONITOR'S ACRONYM(S)

11. SPONSOR/MONITOR'S REPORT NUMBER(S)

12. DISTRIBUTION / AVAILABILITY STATEMENT
Approved for Public Release; Distribution is Unlimited

13. SUPPLEMENTARY NOTES

14. ABSTRACT

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Military engineers are capable of supporting operations against a hybrid threat, through synchronized and simultaneous actions. The integration of combat, general, and geospatial engineering along with the engineer lines of effort will support operations in this environment. Furthermore, military engineers enable the application of operational art, which supports commanders as they combat hybrid threats to achieve their desired state

15. SUBJECT TERMS
Military Engineering; Hybrid Threat; Operational Framework; Operational Art; Korean War; Cambodian Campaign; Synchronization and Simultaneity.

16. SECURITY CLASSIFICATION OF:			**17. LIMITATION OF ABSTRACT**	**18. NUMBER OF PAGES**	**19a. NAME OF RESPONSIBLE PERSON**
					MAJ James B. Pence
a. REPORT	**b. ABSTRACT**	**c. THIS PAGE**			**19b. PHONE NUMBER** *(include area code)*
(U)	(U)	(U)	(U)	45	254-247-8609

Standard Form 298 (Rev. 8-98)
Prescribed by ANSI Std. Z39.18

Monograph Approval

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The opinions and conclusions expressed herein are those of the student author, and do not necessarily represent the views of the U.S. Army Command and General Staff College or any other government agency. (References to this study should include the foregoing statement.)

Abstract

Military Engineer Contribution to Operational Art: The Hybrid Threat Environment, by MAJ James B. Pence, USA, 44 pages.

The hybrid threat construct is the future model that the US Army will use to focus their training efforts. Units will develop techniques and capabilities to defeat this model, both at home station and Combat Training Center (CTC) rotations. Although considerable discourse highlights that this is a new way of war, history says otherwise. The hybrid threat concept is not a new form of warfare; history marks multiple examples and variations of this construct. From Napoleon's Peninsular Campaign (1808 to 1814) in Spain to the 2006 Hezbollah-Israeli War, hybrid threats are prevalent on the battlefield. Furthermore, military engineers served with distinction in hybrid threat environments, significantly enhancing a force's capability in a conflict.

Military engineers are capable of supporting operations against a hybrid threat, through synchronized and simultaneous actions. The integration of combat, general, and geospatial engineering along with the engineer line of efforts will support operations in this environment. Furthermore, military engineers enable the application of operational art, which supports commanders as they combat hybrid threats to achieve their desired state.

Acknowledgements

I would like to thank Dr. Thomas Bruscino for his insights on hybrid threats and patience in helping me identify a sufficient methodology for this monograph. Additionally, I would like to thank COL Michael Rayburn for his leadership, mentorship, and guidance throughout this year. Lastly and most important, I would like to my wife Aida, and sons Joshua and Jacen. They endured countless hours of watching me read and write papers throughout the night. Their patience, sacrifice, and support this year was amazing.

Contents

Acronyms

AVRN	Army of the Republic of Vietnam
COIN	Counterinsurgency
COSVN	Central Office of South Vietnam
CPV	Chinese People's Volunteers
CTC	Combat Training Center
DPRK	Democratic People's Republic of Korea
KKK	Khmer Kampuchea Krom
KMAG	Korean Military Advisor Group
KNR	Korean National Railroad
KPA	Korean People's Army
IED	Improved Explosive Device
LOC	Line of Communication
LOE	Line of Effort
MACV	Military Assistance Command Vietnam
MSR	Main Supply Route
NVA	North Vietnamese Army
PRC	People's Republic of China
SKLP	South Korean Labor Party
SOG	Special Studies Operations Group
RCT	Regimental Combat Team
ROK	Republic of Korea
ULO	Unified Land Operations
UN	United Nations
UNPIK	United Nations Partisan Infantry Forces
VC	Viet Cong

Introduction

"Win occurs at the strategic level and involves more than just firepower. It involves the application of all elements of National Power. Complex is defined as an environment that is not only unknown, but unknowable and constantly changing. They Army cannot predict who it will fight and with what coalition it will fight. To win a complex world, Army forces must provide the Joint Force with multiple options, integrate the efforts of multiple partners, operate across multiple domains, and present our enemies and adversaries with multiple dilemmas." [T1]

—Lieutenant General David G. Perkins, "Win in a Complex World"

Lieutenant[T2] General David G. Perkins, United States (US) Army Training and Doctrine Commander, captured the essence of the challenges facing the force today in his preface to TRADOC Pamphlet 525-3-1, *The US Army Operating Concept.*[1] At the head of these challenges is the hybrid threat construct along with the simultaneity and synchronization debate. How does the US Army defeat regular, irregular, and criminal elements acting in concert together against the US desired state in the operational environment? Furthermore, there is some discourse among military professionals when discussing synchronized actions against a specific target of interest versus actions spanning across multiple targets. However, the US Army's direction to model the future threat template as hybrid implies that both may be required to be successful.

The hybrid threat construct is the future model that the US Army will use to focus their training efforts. Units will develop techniques and capabilities to defeat this model, both at home station and Combat Training Center (CTC) rotations. Although considerable discourse highlights that this is a new way of war, history says otherwise. The hybrid threat concept is not a new form of warfare; history marks multiple examples and variations of this construct. From Napoleon's Peninsular Campaign (1808 to 1814) in Spain to the 2006 Hezbollah-Israeli War, hybrid threats are prevalent on the battlefield. Furthermore, military engineers served with distinction in hybrid

[1] TRADOC Pamphlet 525-3-1, *US Army Operating Concept*: *Win in a Complex World* (Washington, DC: Government Printing Office, 2014), iii.

threat environments, significantly enhancing a force's capability in a conflict. Engineers are capable of supporting operations against regular, irregular, and criminal elements, operating in the same environment. Analyzing hybrid threats from a military engineer perspective establishes the purpose of this monograph.

To set the context of this monograph, an examination of current literature and doctrine relating to hybrid threats, military engineers, and operational art is necessary. First, this section will examine hybrid threat literature to develop an understanding of the construct. Second, an explanation of military engineer functions will focus the perspective of the paper. With these foundations, this section will highlight the gap in current doctrine between hybrid threats and military engineers. Finally, defining operational art, the elements operational art, and the concepts of synchronization and simultaneity will highlight the methodology used for case study analysis.

The term hybrid threat has permeated the military lexicon over the last few years. There are numerous publications arguing whether hybrid warfare is new, a historical continuity, or a manifestation of compound warfare. This monograph will not focus on that debate but rather use the concept as a landscape to analyze engineer effects on the battlefield. Nevertheless a review of Thomas Huber's compound warfare, Frank Hoffman's hybrid warfare, and current doctrinal definitions will suffice to better understand the threat construct.

Huber defines compound warfare as, "the simultaneous use of a regular or main force and an irregular or guerilla force against an enemy."[2] This concept predicates the enemy's ability to present the friendly force with multiple dilemmas to deal with. The enemy regular force essentially draws the attention of the friendly main force while the irregular forces harass lines of communication (LOCs), disrupting the friendly forces' logistics and tempo. Additionally, as these forces are complimentary, it pressures the friendly force to mass against the enemy regular force

[2] Thomas Huber, "Compound Warfare: A Conceptual Framework," in *Compound Warfare: That Fatal Knot*, ed. Thomas M. Huber (Fort Leavenworth: US Army Command and General Staff College Press, 2002), 1.

and disperse to protect its LOCs at the same time.[3] Huber further supports this concept with an analysis of historical examples, such as Napoleon's Peninsular Campaign (1808 to 1814) and Vietnam (1965 to 1973).[4]

Hoffmann presents another key insight in defining hybrid threats. "Hybrid wars incorporate a range of different modes of warfare, including conventional capabilities, irregular tactics and formations, terrorist acts including indiscriminate violence and coercion, and criminal disorder."[5] Hoffman's definition is reminiscent of the current US Army doctrinal definition but differs from Huber's compound warfare theory. Huber's compound warfare theory implies that the irregular forces are a distraction to protect the main enemy force and keep the friendly force unbalanced, largely an economy of effort.[6] Hoffman's theory describes a blurring of effects at the operational and tactical levels, creating a complex environment with unknown effects.[7]

A closely related methodology to define hybrid threats exists in current doctrine. In November 2010, the US Army published TC 7-100, *Hybrid Threat*. This manual outlines the theoretical construct, tactics, strategy, and organization of an enemy framework, characterized as the most likely future adversary to the US Military. The manual defines this construct as, "the diverse combination of regular forces, irregular forces, and/or criminal elements all unified to achieve mutually benefitting effects."[8] This monograph will utilize this definition as the landscape and method to describe the three components, regular, irregular, and criminal elements.

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[3] Ibid., 2.

[4] Ibid., 1.

[5] Frank Hoffman, "Conflict in the 21st Century: The Rise of Hybrid Wars" (monograph, Potomac Institute for Policy Students, 2007), 14.

[6] Frank Hoffman, "Hybrid Warfare and Challenges," *Joint Forces Quarterly* no. 52 (January 2009), 36-37.

[7] Ibid., 37.

[8] Training Circular 7-100, *Hybrid Threat* (Washington, DC: Government Printing Office, 2010), v.

Establishing a common definition of regular, irregular, and criminal elements is necessary to expand understanding of the hybrid threat construct. Regular forces contain units with conventional capabilities, such as infantry, tanks, artillery, etc. These units generally maneuver on the battlefield via mechanized vehicles or travel dismounted, engaging the enemy in conventional combat. Traditional combined arms methods of warfare are evident, to include offensive and defensive actions. Partisans, insurgents, and guerillas operating predominately in the hinterlands or among the population encompass the concept of irregular forces. These forces avoid conventional force strengths by avoiding open battle and attacking LOCs and conventional rear areas. Irregular forces attempt to control the population sometimes through fear and coercion, facilitating a base of support to operate from and a method to hide their presence.[9] Similarly, criminal elements may operate in the area of operations. These elements may conduct illegal activities to harbor irregular forces and fund their operations. Enemy conventional forces may also benefit from the freedom of movement of criminal elements, possessing the capability of circumventing an economic sanction or international norm. The sheer presence of these organizations on the battlefield create complex conditions for US forces. However, they may not be acting in full concert with the conventional or irregular forces, harboring their own objectives and goals. The combination of regular forces, irregular forces, and criminal elements operating in concert or in the same area of operations creates a complex environment, difficult for any military organization to achieve success in.

Garnering the military engineer perspective requires an examination of engineer disciplines and competencies. The current US military engineering doctrinal framework, developed through the US Army Engineer Regiment, provides a comprehensive explanation of

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[9] Kalyvas asserts that control of a population is the critical factor in gaining collaboration. "The higher the level of control exercised by a political actor in an area, the higher the level of civilian collaboration with this political actor will be." Stathis N. Kalyvas, *The Logic of Violence in Civil War* (Cambridge: Cambridge University Press, 2006), 111.

capabilities. Military engineers provide freedom of action for the land power component, providing simultaneous effects that mitigate terrain constraints and support the force.[10] Engineers execute this freedom of action through the means of combat engineering, general engineering, and geospatial engineering.[11] Combat engineering are capabilities and activities that support the maneuver force, to include mobility, countermobility, and survivability tasks.[12] These may include tactical activities such as combined arms breaching, bridging, obstacle emplacement, and fighting position development. General engineering encompasses construction tasks, such as the establishment of a base camp, constructing lines of communication, and power generation distribution.[13] Geospatial engineering provides the force with an understanding of the operational environment though terrain visualization products and analysis.[14] In addition to these disciplines, engineers possess the capability to fight as infantry, complimenting the maneuver force.[15]

According to FM 3-34, *Engineer Operations*, the Engineer Regiment synthesizes the "means" of combat, general, and geospatial engineering by translating them into lines of effort or "ways" engineers support the pursuit of the operational desired state. The engineer lines of effort (LOE) include assure mobility, enhance protection, enable force projection and logistics, and building partner capacity and develop infrastructure.[16] The assured mobility LOE seeks to combine the mobility and countermobility disciplines to enable the commander to maintain a

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[10] Field Manual 3-34, *Engineer Operations*, (Washington, DC: Government Printing Office, 2014), iv.

[11] Ibid.

[12] Field Manual (FM) 3-34, *Engineer Operations* (Washington, DC: Government Printing Office, 2014), 1-1.

[13] Ibid., 1-2.

[14] Ibid.,1-2.

[15] Ibid., 2-11.

[16] Ibid., iv.

position of relative advantage and deny that advantage to the enemy.[17] Enhance protection seeks to preserve the force to enable the commander to exert the maximum available combat power.[18] Enabling force projection and logistics allows the commander to expand his operational reach with sustainable operational infrastructure.[19] Building partner capacity and developing infrastructure focuses on counterinsurgency (COIN) support that enables the commander to focus on host nation capacity and support to the population.[20]

A review of current US military engineer doctrine reveals that engineers possess the capacity and capability to combat conventional and unconventional threats in the environment. However, can military engineers do both at the same time? FM 3-34, *Engineer Operations*, states that engineers can execute simultaneous tasks with different purposes and in support of other military functions.[21] Additionally, doctrine states that engineer effects need synchronization with the overall operation to be successful.[22] A simple but complex question arises: can military engineers support operations in a hybrid threat environment through synchronized and simultaneous actions throughout the battlefield?

To address hybrid threats in current doctrine, Unified Land Operations (ULO) describes the necessity of simultaneous operations to defeat an adversary and prevail in conflict.[23] Additionally, ADP 3-0 states the purpose of ULO, "to seize, retain, and exploit the initiative to

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[17] Ibid., 2-2.

[18] Ibid., 2-5.

[19] Ibid., 2-6.

[20] Ibid., 2-7.

[21] Ibid., 2-1.

[22] Ibid.

[23] Army Doctrine Publication (ADP) 3-0, *Unified Land Operations* (Washington, DC: Government Printing Office, 2011), 1.

gain and maintain a position of relative advantage in sustained land operations through simultaneous offensive, defensive, and stability operations."[24] The combination and transition of offensive, defensive, and stability tasks broadly outlines the US Army's construct to combat a hybrid threat. Although this framework is adequate to match a competency to the hybrid threat problem, it lacks the specificity on how the military will operate with the combination of warfighting functions and elements of combat power. Furthermore, limited discussion is available in doctrine that addresses how each branch will contribute to the defeat of this adversary in a complex environment.

FM 3-34, *Engineer Operations*, acknowledges this hybrid threat construct but lacks a discussion on how military engineers will contribute.[25] In a conventional fight, engineers possess the capability to breach obstacles, employ obstacles, dig fighting positions, and fight as infantry. This appears straight forward, but what if a combined arms breach is required at the same time in which insurgents are employing Improvised Explosive Devices (IEDs) against LOCs in the rear area? This requires a holistic look at the operational environment in time and space to synchronize actions in one event, then to do the same across the battlefield simultaneously. However, identifying an issue and placing force against it appears to be reactionary in nature. Engineers are extremely versatile and adaptive but certainly cannot keep pace by simply reacting to a constantly changing and dynamic environment. A proactive approach in identifying a desired state with the allocation of forces and resources is necessary. Operational art and the decisive-shaping-sustaining operational framework are methodologies that may assist engineers and planners in navigating through the complexity of a hybrid threat environment.

[24] Ibid.

[25] FM 3-34, *Engineer Operations*, v.

"Operational art is the pursuit of strategic objectives, in whole or in part, through the arrangement of tactical actions in time, space, and purpose."[26] Achieving the strategic objectives may prove to be an arduous task for military planners in a hybrid threat environment. Arranging tactical actions against a conventional foe is difficult enough without adding irregular forces who attack rear areas and criminal elements operating on separate lines of effort. Furthermore, the question arises on how each warfighting function and branch will contribute to operational art to meet this threat. Planners use the elements of operational art to help visualize the battlefield, integrate combined arms actions, and synchronize combat power in a campaign or operation.[27] Identifying elements such as operational reach, culmination, basing, tempo, and risk help operational artists plan an effective campaign through articulation to the commander and subordinate units.[28] Operational reach and culmination are naturally paired elements, which concerns the time and distance a force can successfully employ their capabilities.[29] Basing refers to the permanent and non-permanent installations a force utilizes to project combat power.[30] "Tempo is the relative speed and rhythm of military operations over time with respect to the enemy."[31] Military engineers contribute to these elements and the pursuit of the operational desired state through the engineer LOEs of assured mobility, enhancing protection, enabling force protection and logistics, and building partner capacity and developing infrastructure.

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[26] Army Doctrine Reference Publication (ADRP) 3-0, *Unified Land Operations* (Washington, DC: Government Printing Office, 2011), 4-1.

[27] Ibid., 4-2.

[28] Ibid., 4-3.

[29] Ibid., 4-5.

[30] Ibid., 4-6.

[31] Ibid., 4-7.

The decisive-shaping-sustaining framework is a conceptual representation for military planners and commanders to direct tactical actions on the battlefield. The decisive operation leads directly to mission accomplishment and is the focal point for all operations.[32] The defeat of an enemy operational force that causes the enemy to capitulate may be the decisive operation. Shaping operations are secondary tasks and missions that establish conditions for the success of the decisive operation.[33] This may include the seizure of key terrain or deception operation that allows the force to set up its main attack. Finally, sustaining operations through generating and maintaining combat power enable the decisive and shaping operations to occur.[34] Sustainment and infrastructure development are typically associated with this operation. Combatting a hybrid threat requires a holistic view of the environment, a deduction that is apparent when using the decisive-shaping-sustaining framework.

Military practitioners use the terms of synchronization and simultaneity interchangeably. According to ADP 3-0, *Unified Land Operations,* "synchronization is the arrangement of military actions in time, space, and purpose to produce a maximum relative combat power at a decisive place and time."[35] This concept attempts to unify and integrate all the elements of combat power and warfighting functions into common approach to the situation. "Simultaneity is the execution of related and mutually supporting tasks at the same time across multiple locations and domains."[36] Although there is a perception that these are two different things, simultaneity is actually a subset of synchronization. Based on necessity and desire, a modern commander and staff will work to achieve both in their operations. To combat a hybrid threat, which executes

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[32] Ibid., 1-12

[33] Ibid.

[34] Ibid.

[35] ADP 3-0, 9.

[36] TRADOC Pamphlet 525-3-1, *US Army Operating Concept,* 21.

multiple actions in the environment, achieving both synchronization and simultaneity is also a necessity.

The hybrid threat environment poses numerous challenges for the future force, as the US pursues its operational desired state. This monograph will argue that military engineers are capable of supporting operations against a hybrid threat, through synchronized and simultaneous actions. The integration of combat, general, and geospatial engineering along with the engineer LOEs will support operations in this environment. Furthermore, military engineers enable the application of operational art, which supports commanders as they combat hybrid threats to achieve their desired state.

For its methodology, this monograph will rely on historical research to highlight the unique contributions of military engineers operating in a hybrid threat environment. As Clausewitz states, "historical examples clarify everything and also provide the best kind of proof in the empirical sciences."[37] It will present two case studies – The Korean War (1950-1953) and the Cambodian Campaign (April – July 1970). Each case study will outline the following: the strategic context, the hybrid construct of the conflict, the success or failure of significant engineer contributions through the decisive-shaping-sustaining operational framework and a qualitative assessment of engineer synchronization and simultaneity. The conclusion will seek to develop insights and implications for US Army operational planners and artists in leveraging engineer support in operations against a hybrid threat.

The Korean Hybrid Threat: "The Forgotten War"

The Korean War (1950-1953), commonly referred to as the "forgotten war," does not receive as much notoriety as other conflicts, such as the World Wars.[38] Although the US did not

[37] Carl von Clausewitz, *On War*, edited and translated by Michael Howard and Peter Paret (Princeton, NJ: Princeton University Press, 1989), 170.

[38] Allan R. Millett, *The War for Korea, 1950-1951: They Came from the North* (Lawrence: University Press of Kansas, 2010), 2.

necessarily “win” this conflict, they did not lose either. Instead, a stalemate occurred along the 38th parallel that denotes the demilitarized zone between the democratic south and the communist north, which continues today. The Korean War lacked a decisive victory for the US, as they were accustomed to directly following the end of World War II. A majority of historical publications focus on the conventional combat between the US and Republic of Korea (ROK) versus the Democratic People’s Republic of Korea (DPRK) and People’s Republic of China (PRC). However, the portrayal of a clean conventional war is far from the truth. Taking a holistic look at the Korean landscape before the 1950 US military intervention and actions within the urban cities and conventional rear areas reveals that irregular and criminal elements permeated the battlefield. Although there is a lack of sufficient evidence to declare that the regular, irregular, and criminal elements were always acting in concert, the presence of these elements posed significant issues for both sides. US military engineers were present combatting all three elements throughout the Korean peninsula, supporting the pursuit of the operational objectives.

The purpose of this section is to highlight the significant engineer contributions against the Korean War hybrid threat. This section will highlight key engineer actions during some of the major operations conducted in the war, to include Operation Chromite’s Inchon landing, the UN offensive to the Yalu River, and the US retrograde in the wake of the first three PRC offensives. Historical analysis will demonstrate how the engineer disciplines and LOEs enabled synchronized and simultaneous actions during the subsequent US campaigns, combatting regular, irregular, and criminal threats. The intent of this section is not to retell the story of the Korean War but rather use the setting and events as evidence to support engineers in action against hybrid threats. This section will introduce the overall strategic context of the war, categorize the elements of the hybrid threat, analyze engineer contributions in the major campaigns through the decisive-shaping-sustaining framework, and conclude with a synthesis on engineer effects

Following Japan's surrender from World War II in August to September 1945, a two-power occupation of Korea ensued between the US and Soviet Union.[39] As the US occupied the south of Korea, the intention was to abolish the Japanese institutions and transform the south into a US friendly democratized nation.[40] Remodeling Korea in the image of the "New Japan" would further establish US presence and influence in Asia.[41] In 1948, South Korea would elect its first president, Syngman Rhee and form the Republic of Korea.[42] Initially, as the Soviet Union occupied North Korea they exploited the landscape to assist in recovery of their own post war state.[43] However, in October 1945 the Soviets began to develop North Korea as a buffer state, aligned under the communist ideology.[44] The long goal was to unify Korea under the communist banner once the US withdrew their forces from the south.[45] The division of Korea under the US and Soviet Union influence set the stage for a Cold War confrontation between competing ideologies, western values versus communism. A deep divide in the population base of Korea ensued, creating communist and nationalist guerrillas. "Korea, being a politically and ideologically divided country engaged in a civil war, saw guerilla action on both sides of the Thirty-Eighth Parallel."[46] The Cheju-do rebellion of 1948 began a series of communist partisan attacks, including raiding and assassinations throughout the southern Korean provinces.[47]

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[39] Barry W. Fowle, John C. Lonnquest (editors), *Remembering the "Forgotten War": US Army Engineer Officers in Korea* (Alexandria, VA: U. S. Army Corps of Engineers, 2005), xvi.

[40] Millett, *The War for Korea, 1950-1951*, 11.

[41] Ibid.

[42] Ibid., 12.

[43] Ibid., 11.

[44] Ibid.

[45] Ibid.

[46] Colonel Virgil Ney, *Notes on Guerrilla War: Principles and Practices* (Washington, DC: Command Publications, 1961), 112.

[47] Millett, *The War for Korea, 1950-1951*, 12.

Although the efforts of the South Korean Constabulary and US led Korean Military Advisor Group (KMAG) neutralized this irregular offensive, the effectiveness of the irregulars was evident.[48] From 1949-1950, over 7,000 South Korean security forces and approximately 30,000 to 60,000 civilians lost their lives.[49]

In June 1950, the DPRK, led by Kim Il-Sung initiated their conventional offensive by crossing the 38th parallel to overthrow Rhee and unify Korea under the communist banner.[50] Understanding that the DPRK was acting under the support and influence of the Soviet Union and PRC, the US contemplated military intervention. As the Soviet Union had achieved nuclear weapons employment parity in 1949, the US pursued a limited intervention strategy, even declaring the matter a "police action".[51] The US overall strategic vision was to contain communist aggression in accordance with the collective defense plan.[52] President Harry Truman even stated that, "if we let Korea down, the Soviets will keep right on going and swallow up one piece of Asia after another."[53] A large-scale conventional contest eventually emerged as operations spanned the deployment and defeat of Task Force Smith, the Pusan breakout, Inchon landing, and the numerous PRC offensives following October 1950. The US strategic direction altered over the course of 1950-1953 from liberating South Korea to unifying the peninsula under United Nations (UN) control to reestablishing pre-conflict borders. However, the conflict stayed relatively limited in nature due to the fear of nuclear escalation by the Soviet Union.

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[48] Ibid.

[49] Ibid.

[50] Fowle and Lonnquest, *Remembering the "Forgotten War"*, xvi.

[51] Millett, *The War for Korea, 1950-1951*, 119.

[52] Ibid., 124.

[53] Ibid., 119.

The forces participating in the Korea War encompassed the hybrid threat elements of regular, irregular, and criminal. The conventional regular forces of the Korean War were comprised of similar military capabilities of the militaries of World War II. Dismounted infantry was the most predominant force, followed by augmentation of medium tanks, a mix of artillery and mortars, and close air support aircraft. The main regular force factions included the Korean People's Army (KPA), the US military, the ROK Army, and the PRC military. The Korean People's Army (KPA), originating from the DPRK was a moderately armed force, equipped with aircraft and Soviet T-35 and T-85 medium tanks.[54] This powerful conventional force encompassed multiple divisions of light infantry, capable of traversing the difficult terrain of the Korean peninsula. The ROK Army possessed similar capabilities but lacked the depth of armor present in the KPA, relying on US made artillery and recoilless rifles.[55] During the initial invasion by the KPA in June 1950, the ROK 1st Division found success in targeting dismounted infantry with their 105 mm howitzers but could not destroy the menacing KPA T-34 tanks.[56] As the 21st Regimental Combat Team (RCT), led by Lieutenant Colonel Charles Smith engaged the KPA armor they had similar failure with their recoilless rifles and "bazooka" rocket launchers.[57] Later in the conflict, the US employed numerous sorties of F-82 Mustangs, serving as close air support, as well as minefields, emplaced by engineers to slow the advance of the KPA armor threat.[58] A more in depth exploration of engineer countermobility efforts will follow in the engineer contributions sections.

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[54] Stanley Sandler, *The Korean War: No Victors, No Vanquished* (Lexington: The University Press of Kentucky, 1999), 49.

[55] Ibid., 55.

[56] Ibid., 51.

[57] Ibid., 55.

[58] Ibid., 54.

The US military had comparable military capabilities to their armament of World War II. Combined arms organization and joint operations permeated the US force, integrating elements of the US Army, US Marine Corps, and US Navy into one command, led by General Douglas MacArthur.[59] The land force was comprised of the Eighth Army, led by General Walton Walker and later General Matthew Ridgway, the First Marine Division, led by Major General O.P. Smith, and X Corps, led by Major General Edward Almond.[60]

The PRC's conventional force lacked the technical and equipment superiority of their US adversaries, but were still an effective force with their mix of tactics. The PRC fielded the Chinese People's Volunteers (CPV), designated as a separate element from the People's Liberation Army. This distinction allowed the PRC and Soviet Union to maintain political anonymity with an alleged "volunteer" organization, intervening to defend the communist Korean state against western aggression.[61] CPV forces were generally poorly equipped light infantry with a mixture of Japanese and American made rifles.[62] They did not possess the same aircraft, armor, artillery, communication, and logistical support that their US counterparts possessed.[63] Although the CPV primarily operating as a conventional force, the tactics they employed was reminiscent of irregular warfare. To avoid detection and the superior US air power threat, the CPV maneuvered at night and camouflaged themselves in the hinterlands throughout the day.[64] Routine tactics of the CPV included the envelopment of UN fixed positions. For example, in

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[59] Stanley Sandler, *The Korean War: No Victors, No Vanquished* (Lexington: The University Press of Kentucky, 1999), 54.

[60] Millett, *The War for Korea, 1950-1951*, 208-210.

[61] Sandler, *The Korean War*, 115.

[62] Ibid.

[63] Ibid.

[64] Ibid.

December 1950 when the 31st RCT, Task Force Faith was holding a defensive position on the eastern side of the Chosin Reservoir, the CPV initiated an envelopment.[65] The CPV maneuvered through the mountainous terrain around the reservoir to establish roadblocks in the RCT's rear LOC.[66] The US RCT's logistical and reinforcement support was contingent on the road to Hangaru-ri. The result was an isolated and enveloped UN force that disintegrated over the next week of combat action.[67]

The irregular forces operating in Korea consisted of the communist guerillas, remnants of the KPA forces, ROK anti-communist elements, and the United Nations Partisan Infantry (UNPIK) forces. The communist guerillas originated from the dissidents of the communist South Korean Labor Party (SKLP) and other disenfranchised Korean inhabitants. These guerillas blended with the numerous refugees fleeing along the constrained LOCs and bridges from either North or South Korea, depending on the war's period.[68] Constant harassment of US and ROK logistics, and patrol targeting characterized the majority of their operations.[69] In addition, when CPV forces seized an area previously under UN control, such as Seoul, retribution and mass killing was rampant.[70] These atrocities continued in UN refugee and POW camps, as separating the mix of northern and southern dislocated people was difficult to achieve.[71]

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[65] Roy E. Appleman, *East of Chosin: Entrapment and Breakout in Korea, 1950* (College Station: Texas A&M University Press, 1990), 100-140.

[66] Ibid., 138.

[67] Ibid., 139.

[68] Millett, *The War for Korea, 1950-1951*, 161-162.

[69] Ibid.

[70] Sandler, *The Korean War*, 216.

[71] Ibid.

After the success of Operation Chromite, the Inchon landing in September 1950, the PRC directed the remnants of the KPA to disband as a conventional force and form irregular guerilla formations.[72] The KPA split their force, forming eighteen separate guerilla groups, totaling over 40,000 soldiers.[73] Their mission was to disrupt UN forces on their march north to the Yalu River in order to set the conditions for the CPV offensive in October 1950.[74] A mark of their success was captured in a November X Corps situational report, indicating that UN forces identified over 62 guerilla organizations which were responsible for 109 attacks that month.[75] Overall, the communist and KPA guerrilla operations made the UN force dedicate at least one third of the total force, a significant issue when fighting a conventional war with the PRC.[76] Maintaining the UN's offensive tempo in the wake of numerous irregular attacks challenged engineers in all the disciplines.

The UN also harnessed the hybrid threat construct, as they formed irregular and counter-insurgency forces from the population. UNPIK, or the "donkeys," was the UN's irregular force, acting in concert with its regular conventional operations. A majority of this irregular force were refugees fleeing the PRC advance, taking refuge on the islands off the coast of the DRPK.[77] The Eighth Army exploited this opportunity, arming and training the refugees for operations against the rear of the PRC.[78] The "donkeys" conducted numerous raids against PRC LOCs, gathered

[72] Millett, *The War for Korea, 1950-1951,* 295.

[73] Ibid.

[74] Ibid.

[75] Sandler, *The Korean War*, 217.

[76] Ibid.

[77] Ibid., 216.

[78] Sandler, *The Korean War*, 216.

intelligence for air strikes, and even participated in rescue operations for stranded UN aviators.[79] Although this force received less notoriety than the regular forces of the Korean War, their presence contributed to the complexity of the hybrid threat landscape. The UN's counter-insurgency forces, organized to quell the irregular KPA and communist threat, included the Korean National Police (KNP) and Korean Student Volunteer Force. These anti-partisan forces assisted in refugee control and hunting suspected communist guerilla groups intermixed in the population.[80]

Finally, although little documentation exists on the criminal elements of the Korean War, their presence was evident on the battlefield. Throughout 1950 to 1953, control of the Korean peninsula changed multiple times between the UN, CPV, and KPA forces. As a result, a considerable amount of the population separated from their residences. To survive in the desolate and war torn landscape, many Koreans turned to criminal activity for individual profit or to provide support to their families. The mixture of criminal bandits and irregular forces on the battlefield made it difficult to distinguish between the political and criminal elements, adding to the complexity of the conflict.[81]

Analyzing the significant engineer contributions of the Korean War requires an operational context to understand the value of their efforts. This operational context consists of Operation Chromite, the general UN offensive prior to the PRC's intervention, and the UN retrograde from the PRC offensives. Through this context, an analysis of engineer actions through the decisive-shaping-sustaining framework will yield their effect on the Korean War hybrid threat.

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[79] Ibid.

[80] Millett, *The War for Korea, 1950-1951*, 158.

[81] Sandler, *The Korean War*, 217.

In September 1950, the UN launched Operation Chromite, General MacArthur's famous Inchon landing to seize the initiative from the DRPK. The general mission of Chromite was to, "seize Inchon and use it as a base for a campaign to capture Seoul and cut the major supply route to the KPA in the south."[82] After Chromite's success, the UN General Assembly approved Resolution 376, to unify the Korean peninsula.[83] The month of October 1950 included the UN crossing the 38th parallel, seizure of Seoul and Pyongyang, X Corps landing at Wonsan, and the general offensive north to the Yalu River.

During the planning for Operation Chromite, planners sought engineer expertise and support for the amphibious landings at Inchon. The sourcing of the Second Engineer Brigade and Navy Seabees would meet the amphibious requirement planners were looking for. The Seabees primarily supported the decisive operation through the unit landings against the regular forces of the KPA. This included teams devoted to demolition and construction, organized throughout three landing teams.[84] These teams supported the actual beach landings with minor breaching from the landmines on the beach, as well as bridgehead development with their construction equipment to facilitate infantry exploitation.[85] Although the Second Engineer Brigade engineers did not participate in the decisive operation, they were instrumental in the shaping and sustaining operations at the Inchon Port.[86] With attached forces such as the ammunition handlers, signal units, port builders, and rail specialists, the Second Engineer Brigade facilitated the requisite basing for UN forces to achieve their mission. The Second Engineer Brigade's expeditionary lodgment operations provided external port access and logistics to UN forces. After securing the

[82] Millett, *The War for Korea, 1950-1951,* 240.

[83] Ibid., 278.

[84] Ibid., 242.

[85] Ibid., 242-243.

[86] Fowle and Lonnquest, *Remembering the "Forgotten War",* 102-110.

external supplies, logisticians could then use the infrastructure developed by the engineers to push supplies to the maneuver units[T3].[87] Delivering the necessary logistics for the maneuver units engaging the KPA was essential in enabling the decisive operation against the regular threat and achieving General MacArthur's vision of the operation.

During the UN offensive from September to November 1950, engineers supported the decisive operation, combatting regular threats during the Pusan perimeter breakout, shaping operations against irregular and criminal threats in the UN support area, and sustaining operations against irregular and criminal threats to facilitate logistics and project combat power. Supporting the decisive operation encompassed the combat engineering discipline, enhancing the freedom of movement UN forces, especially in the form of bridging and assault crossings. In conjunction with the Inchon landing, UN forces were conducting a breakout of the Pusan perimeter in September 1950. The Pusan perimeter was a KPA enforced UN enclave in South Korea, prior to the UN offensive. To achieve the breakout, UN forces had to cross the Naktong River, a formidable north to south river obstacle blocking the UN march north. The 24th Infantry Division enlisted the support of the Third Engineer Battalion, which was task organized with operational control throughout the division. From 17 to 19 September 1950, the Third Engineer Battalion conducted three assault river crossings under intense fire from both sides of the river.[88] KPA forces in defensive positions engaged engineers at the crossing sites while irregulars harassed vital supply lines in the rear. As the maneuver units of the 24th Infantry Division crossed, engineers supported the exploitation on the far side.[89] Supporting the decisive operation, these engineers conducted multiple tasks of assured mobility through the combat engineering discipline

[87] Ibid.

[88] John G. Westover, *Combat Support in Korea: the United States Army in the Korean Conflict* (Washington, DC: Center of Military History, United States Army, 1987), 5-10.

[89] Ibid., 5-10.

near simultaneously throughout the operation. As Captain Richard Lepke of the Third Engineer Battalion attested, "within three days Charlie Company had received orders for, had planned, and had executed three river crossings, supporting two different regiments…during the same period had given general engineering support to a third regiment in the attack."[90]

Constructing bridges to facilitate movement throughout the conflict allowed UN forces to maintain their tempo in the attack in the decisive operation. Building and employing improvised and fixed bridging was a common engineer task throughout the conflict. For example, Alpha Company, 65th Engineer Battalion constructed over 35 bridges in about nine months, both in the original and second UN offensives.[91] Expediting bridge construction was necessary to maintain pressure on the KPA forces and momentum in the attack. In about a week, one engineer company constructed eight timber bridges, ranging from 120 to 180 feet in length.[92] Other fixed bridges took considerable amount of time and effort but were vital to successful operations in North Korea. The construction of the Teal and Libby bridges across the mighty Imjin River served as a testament to the dedication of UN engineers. Although bridging the Imjin had more significance during the stalemate period of the Korea War, the construction began during the original UN offensive. The Imjin River bisects the important 38th parallel, running north from Inchon to just short of Wonsan on the east coast. It took UN engineers over 15 months to construct the two bridges across the large 400 to 500 foot gap of the river.[93] Bridging the various water obstacles in Korea took considerable engineer effort and expertise, expanding the operational reach of UN forces.

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[90] Ibid., 10.

[91] Ibid., 11.

[92] Ibid.

[93] William R. Farquhar and Henry A. Jeffers, *Bridging the Imjin: Construction of Libby and Teal Bridges During the Korean War (October 1952 - July 1953) (Studies in Military Engineering 5)* (Fort Belvoir, VA: U. S. Army Corps/Engineers, 1989), 3.

Throughout the UN offensive and duration of the conflict, engineers assumed responsibility of the vast unimproved roads, bridges, and railways in the rear areas. These general engineering efforts supported UN shaping operations, as they enabled the general offensive and mitigated the threat of irregular and criminal elements. On multiple occasions, irregular forces would damage bridges to prevent UN mobility and access to logistics.[94] Engineers had to conduct hasty bridging and route improvement during the harsh winter months. Additionally, the use of an indigenous labor force used as irregular engineers was essential in rebuilding the critical infrastructure.[95] With the guidance and leadership of UN engineers, this labor force assisted in the reconstruction of the Korean National Railroad (KNR).[96] The KNR was the major LOC to sustain UN troops throughout Korea, linking over 95 percent of all supplies from the ports to logistical centers.[97] The KNR was a vital operational link to all forces throughout the peninsula. Additionally, the contracted irregular engineer force was responsible for the construction of multiple airfields and over 2700 miles of military roads.[98] During the second UN offensive to recapture the 38th parallel in 1951, engineers and the contracted forces repaired LOCs from the Yongdungpo to the Han River, assuming over 70 miles of railroad and 72 damaged bridges.[99] These achievements are engineer related but the intangible effect of employing local labor to rebuild their own country is immeasurable in a COIN environment. Employing a fighting age

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[94] S.L.A. Marshall. *Battle at Best* (New York: Pocket Books, 1964), 132.

[95] Eric A. Sibul, "Irregular Engineers: The use of indigenous labor in the rebuilding of critical infrastructure during the Korean War, 1950-1953", in *The U.S. Army and Irregular Warfare, 1775-2007: Selected Papers from the 2007 Conference of Army Historians*, Richard G. Davis, ed. (Washington, DC: Dept. of the Army, 2008), 171.

[96] Ibid.

[97] Ibid., 172.

[98] Ibid.

[99] Ibid., 174.

male takes one less irregular insurgent or criminal away from the opposition. In addition, their work not only improves the military capabilities through enhanced mobility but also has an economic benefit of providing trade and access to remote villages.

Supporting the sustaining operation in the UN offensive required extensive general engineering effort. These general engineering contributions include the construction and maintenance of ports, roads, railroads, troop sustainment infrastructure, refugee camps, and bridges. In addition to the Inchon Port operations, engineers built infrastructure to sustain the force at Pusan. Eighth Army engineers utilized heavy construction equipment to transport supplies from the ships to the UN logistical center, for further distribution to UN forces throughout the peninsula.[100] The First Marine Division engineers built and maintained the airfields at Hagaru-ri to provide access for transportation and supplies during the bloody events at the Chosin Reservoir.[101] To relieve pressure on the supply convoys pushing supplies to UN forces north of the 38th parallel, Eighth Army engineers built a rail line north of Pyongyang in November 1950.[102] This new supply LOC would augment the current road centric logistical system, increasing the throughput to over 300 tons a day.[103] To assist in the significant refugee problem, engineers constructed a large evacuation center at Hungnam, providing safety for thousands of dislocated people.[104] Assisting the dislocated civilian population helped alleviate the temptation for criminal activity, which would have been more severe if ignored.

Once CPV forces crossed the Yalu River in October 1950, the war changed from a "police action" in Korea to a limited war with the communist PRC. The PRC launched a series of

[100] Ibid., 164.

[101] Ibid., 338.

[102] Ibid., 312.

[103] Ibid.

[104] Ibid., 349.

six offensives to defeat UN forces, liberate the DPRK, and restore communist power on the peninsula.[105] The PRC was also pursuing primacy in the communist camp and to exert influence over their former tributary state.[106] The first and second major PRC offensives drove UN forces back across the 38th parallel, expelling them from North Korea. During the mass UN retrograde, engineers executed countermobility operations to slow the tempo of the CPV advance and buy time for UN forces to withdrawal with sufficient combat power. Engineer supported the decisive operation through bridge demolitions, shaping operations through supply denial, and sustaining operations through minefield awareness.

In December 1950, during the second PRC offensive, the Eighth Army was retrograding to Pyongyang under pressure from CPV forces. To buy time and allow the UN force to withdraw to safety, Eighth Army engineers and ROK counter-guerrilla units jointly employed countermobility measures. The ROK counter-guerrilla force disrupted the NPK irregulars, who were attempting to further disrupt the UN withdrawal and engineer efforts. Meanwhile engineer demolition crews, supporting the decisive operations, worked tirelessly to destroy any bridges left in their path, most notably the Taedong River bridges.[107] This mitigated the threat from the CPA regular force, allowing UN forces to retrograde safely.

UN engineers, supporting shaping operations, destroyed any remaining ammunition, rations, gasoline, and general supplies not capable of rapid transport to Pyongyang.[108] This major effort allowed the Eighth Army to out run the CPV advance and not cede any supplies to the desperate enemy. Although retrograde operations through the Han River Valley was less

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[105] Clay Blair, *The Forgotten War: America in Korea, 1950-1953* (New York: Times Books, 1987), 375-390.

[106] David A. Graff and Robin Higham, eds., *A Military History of China*, updated ed. (Lexington, KY: The University Press of Kentucky, 2012), 271-275.

[107] Millett, *The War for Korea, 1950-1951,* 347.

[108] Ibid.

destructive, as ordered by General Matthew Ridgway, over 1.6 million gallons of gasoline, nine tons of engineer supplies, twelve box cars of ammunition, the Kimpo airfield, and Inchon harbor were destroyed or damaged by engineer demolition teams.[109] Furthermore, during the Hungnam evacuation by X Corps, engineers destroyed countless infrastructure to include facilities, buildings, abandoned vehicles, railroad rolling stock, and port facilities.[110] To ensure that any remaining supplies did not fall to the CPV, engineers employed booby traps on common items that the ill-supplied army needed. This included the booby trapping of toilets, food stocks, personal exchange supplies, and frozen juice cartoons.[111] Destroying these supplies not only denied its use to the CPV but also the irregular KPA and criminal elements as well.

Minefields were originally an effective tactic early in the Korean War but as the KPA armor began to disintegrate and CPV forces lacked armor, mines were a threat to both sides. To facilitate mobility and sustain the UN force during the retrograde and other operations, engineers executed minefield clearance to facilitate the sustaining operation. Communist guerrillas redeployed many mines to use in their ambushes and sabotage raids.[112] Furthermore, disseminating minefield records to UN forces was problematic, especially during the UN breakout of the Pusan perimeter. To mitigate this threat, engineers conducted numerous reconnaissance patrols, delivering obstacle intelligence reports to nearby maneuver units.[113] Enhancing the protection of the force through either employing minefields or minefield awareness proved invaluable to UN units on the ground.

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[109] Ibid., 354.

[110] Ibid.

[111] Ibid.

[112] Westover, *Combat Support in Korea*, 23.

[113] Ibid., 24.

Irregular forces operating in the rear areas constantly harassed engineer efforts to sustain the force, build, and maintain LOCs and critical infrastructure. For example, maintaining the Pusan logistical hub was problematic for UN forces as irregular units would infiltrate camps and stage raids in rear areas. Irregular forces, like the KPA 766th Special Unit consistently attacked radio relay stations, damaged railroad tracks, and sabotaged ammunition storage points to disrupt the UN logistical node.[114] In addition to rebuilding the damaged infrastructure caused by these irregulars and criminal elements, engineers operated as ad hoc infantry to provide security in the rear areas. Engineers, supporting the sustaining operations enabled the UN's decisive operation.

The necessity of engineer support was evident throughout the hybrid threat environment of the Korean War. Synchronizing engineer actions through Operation Chromite, the UN offensive, and the retrograde allowed General MacArthur and General Ridgway to maximize their relative combat power at the decisive place and time to achieve the operational desired state. Executing an engineer action without an integrated approach would have negated its intent and have unknown effects for the UN force. Engineers enabled synchronized actions against the regular threat in the decisive operation, and irregular and criminal threats in the shaping and sustaining operations. Furthermore, as engineers were required to support conventional operations in the decisive fight as well as rear security tasks in the shaping and sustaining operations, engineer simultaneity was a necessity. Engineers supported mobility for conventional forces against the regular threat, constructed and protected infrastructure in the wake of an irregular threat, and assisted in refugee management to help control criminal activity. Employing engineers sequentially against one threat at a time will not suffice. Integrating engineers through a synchronized and simultaneous approach will assist the friendly force in countering the multiple dilemmas of the hybrid threat environment.

[114] Millett, *The War for Korea, 1950-1951,* 164.

Engineer contributions from the Korean War provides key insights when analyzing a hybrid threat scenario. As operational planners face a hybrid threat environment, they should be cognizant of the engineer effects that may play an essential component in their success. Allocating engineers during the decisive operation to combat the enemy regular force will enhance their operational reach and tempo. Integrating engineers in the rear areas to build infrastructure and roads may help offset the effects of irregular threats. Finally, engineers building refugee camps, employing a local labor force, and assisting in LOC enforcement may help mitigate the effects of criminal activity on the battlefield.

This section highlighted significant engineer contributions against the Korean War hybrid threat through an analysis of the strategic context, linking engineer actions through the major campaigns in the decisive-shaping-sustaining framework. Analyzing engineer actions through some of the major operations of the Korean War emphasized their role in all facets of the hybrid threat environment. The analysis presented highlighted how the engineer disciplines and LOEs facilitated the pursuit of the operational objectives, combatting regular, irregular, and criminal threats. Finally, this section concluded with a qualitative argument of how engineers support operations in a hybrid threat environment through synchronization and simultaneity.

The Cambodian Hybrid Threat

"This is not an invasion of Cambodia."

—President Richard Nixon[115]

The Cambodian campaign (May to June 1970) was an eight week combined operation with the US Army and the Army of the Republic of Vietnam (ARVN) during the Vietnam conflict (1965 – 1973). The campaign encompassed elements of the hybrid threat to include regular forces such as the North Vietnamese Army (NVA), irregular forces such as the Viet-Cong

[115] William Shawcross, *Sideshow: Kissinger, Nixon, and the Destruction of Cambodia*, Revised ed. (New York: Cooper Square Press, 2002), 148.

(VC), and criminal elements such as the White Scarf Clan. Although US history remembers the Cambodian campaign as the catalyst for mass protesting in Washington D.C., subsequent Kent University shootings, and political fallout from the Cooper-Church amendment, the campaign was successful in its intended objectives.[116] The campaign successfully denied the Central Office for South Vietnam's (COSVN) future offensive operations into Saigon, disrupted their logistical infrastructure, and achieved the time needed for Vietnamization implementation and subsequent US withdrawal from Vietnam. The result metrics further legitimize the success of the operation. US and ARVN forces killed 11,362 enemy combatants, captured 2,000 prisoners, and destroyed or confiscated over 10,000 tons of food and material.[117] Major General George Casey summarized it best in his remarks to the 1st Cavalry Division. "The results are impressive. You killed enough of the enemy to man three NVA Regiments; captured or destroyed enough individual and crew-served weapons to equip two NVA Divisions; and denied the enemy an entire year's supply of rice for all his maneuver battalions in our AO."[118]

The purpose of this section is to highlight the significant engineer contributions throughout the Cambodian campaign's hybrid environment. This section will highlight key engineer actions during some of the major operations conducted during the eight-week mission, to include Toan Thang 41 – 45 and Binh Tay I – IV. Historical analysis will demonstrate how the engineer disciplines and LOEs facilitated the decisive-shaping-sustaining framework, combatting regular, irregular, and criminal threats. Although the Cambodian campaign encompasses other successful lessons to include the Studies and Observation Group's (SOG) intelligence gathering,

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[116] John M. Shaw, *The Cambodian Campaign: the 1970 Offensive and America's Vietnam War* (Lawrence: University Press of Kansas, 2005), 153-170.

[117] Adrian G. Traas, *Engineers at War* (Washington, DC: Center of Military History, United States Army, 2010), 510.

[118] John J. Tolson, *Vietnam Studies: Air Mobility 1961-1971* (Washington DC: Department of the Army, 1973), 233.

combined arms integration, and air campaign targeting enemy logistics along the Ho Chi Minh Trail, this section will exclusively focus on engineers supporting maneuver operations. This section will introduce the overall strategic context of the incursion, categorize the elements of the hybrid threat, analyze engineer contributions through the decisive-shaping-sustaining framework, and conclude with a synthesis on engineer effects.

Following the Tet Offensive in the summer of 1968, the strategic situation shifted for the US and South Vietnam. VC casualties totaled over 45,000, significantly degrading their presence in South Vietnam.[119] Even though the VC's offensive brought the realities of war to the South Vietnamese population, it had beneficial effects as well. The event sparked a Southern Vietnamese popular uprising that allowed the government to pass the General Mobilization Law of 1968, greatly expanding the forces of the ARVN.[120] Additionally, it also caused the ARVN and US Army to increase their clearing operations in support of the pacification program, to degrade the VC's footprint in South Vietnam. However, it soon became apparent that throughout these operations that the VC and NVA irregulars would just retrograde and refit across the border in Cambodia, facilitating an enemy sanctuary from friendly operations.[121]

The enemy sanctuary problem was evident to the planners of the Military Assistance Command Vietnam (MACV). The political situation prevented the US from operating outside Vietnam, viewing Vietnam, Laos, and Cambodia as three separate theaters. However, North Vietnam and the VC viewed the four Indochina states as one theater, as they could exploit Cambodian and Laotian neutrality against ARVN and US forces.[122] Cambodia represented an

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[119] Lewis Sorley, *A Better War: the Unexamined Victories and Final Tragedy of America's Last Years in Vietnam* (New York: Harvest, 2007), 14.

[120] Ibid., 15.

[121] Sorley, *A Better War: the Unexamined Victories*, 12-15.

[122] Shaw, *The Cambodian Campaign*, 3.

advantage in operational reach to enemy forces, as the border was a short distance to stage attacks into Saigon.[123] North Vietnamese supplies, personnel, and equipment could travel down the Ho Chi Minh trail and be staged along the Cambodian border for future offensive operations. To mitigate this vulnerability, MACV initiated Operation MENU in March 1968 and an air bombing campaign along the Ho Chi Minh Trail to disrupt their operations. Although this effort disrupted some NVA logistical nodes, it was largely ineffective to deny the enemy sanctuary across the border.

Recognizing the necessity to withdrawal from Vietnam the "right way," improving the capacity of ARVN and safely withdrawing US troops, President Nixon changed the MACV mission. On 17 July 1969, President Nixon shifted the focus, "from defeating the enemy and driving him out of South Vietnam to instead helping Saigon improve its forces, supporting pacification, and interdicting enemy supplies."[124] However, in order for this policy to be effective MACV needed to prevent an NVA offensive from Cambodia that would threaten the vulnerable South Vietnamese government and departing US troops.[125]

As MACV planners contemplated a potential incursion, events in Cambodia spiraled out of control. After Prince Sihanouk was deposed in March 1970, Prime Minister Lon Nol demanded that NVA and VC units leave Cambodia, sparking an NVA offensive to take control of the government of Cambodia.[126] The NVA's goals were to, "protect sanctuaries, isolate Phnom Penh, and create a Cambodian Liberation Army to establish a regime friendly to North Vietnam."[127] General Creighton Abrams' MACV staff began immediate planning for a limited

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[123] Ibid.

[124] Ibid., 18.

[125] Ibid., 23.

[126] Traas, *Engineers at War*, 488.

[127] Shaw, *The Cambodian Campaign*, 26.

operation to destroy the COSVN headquarters and eliminate the enemy sanctuaries in the Parrot's Beak and Fishhook areas. Among considerable political discourse, President Nixon gave the green light for the operation, committing US ground forces.[128] Although the operation would be limited to 30 kilometers, due to the political and strategic situation surrounding the operation, MACV would still face a considerable hybrid threat problem.[129]

The Vietnam conflict, specifically the Cambodian campaign encompassed the elements of the hybrid threat construct. The North Vietnamese Army (NVA) opposing the ARVN and US Army represented the regular conventional forces. The Viet-Cong (VC) and NVA irregulars represented the irregular combatants operating in Cambodia. Finally, although the criminal elements were not as prominent in the campaign, VC militia units and the White Scarf Clan exploited the population in power vacuum areas. Even though there is contradictory evidence to suggest that all three enemy hybrid elements were operating in concert, the complexity created by their presence and subsequent operations throughout the campaign is sufficient to analyze engineer actions.

The communist forces, represented by the NVA and VC, operated in the Cambodia sanctuaries as well as ungoverned areas in South Vietnam. The NVA combat and command and control units encompassed light infantry, artillery, engineer, transportation, medical, and reconnaissance elements.[130] Organization of these units were the conventional regiments, battalions, and companies, totaling over 150,000 soldiers between South Vietnam and Cambodia.[131] The primary headquarters for operations in Cambodia was COSVN, providing

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[128] Ibid., 41.

[129] Gen. Tran Dinh Tho, *Cambodian Incursion (Indochina Monographs)* (Washington, DC: Center of Military History, United States Army, 1997), 39.

[130] Ibid., 9.

[131] Department of the Army Pamphlet 360-521, *Handbook for U.S. Forces in Vietnam* (Washington, DC: US Government Printing Office, Department of Defense, 1966), 10.

orders and guidance to regional commanders throughout the sanctuaries.[132] Some sources declare that under such a headquarters, the NVA and VC were operating under one strategy with a similar strategy, objectives, and tactics.[133] Although there is some discourse over this unified approach, evidence of mutual support and co-existence within the sanctuaries was apparent. For example, on 5 June 1970, during a bridge repair mission at Fire Base Colorado, regular NVA and irregular VC units conducted a mutual attack on the 31st Engineer Battalion, resulting in thirteen casualties.[134] Later in June 1970, communist regular and irregular units attacked engineer-clearing units as they discovered caches and destroyed enemy bunkers in the Fishhook area.[135] Regular NVA units attacked maneuver and infantry forward units as irregular forces attempted to disrupt reinforcements along the infiltration LOCs.[136]

Communist irregular forces consisted of the VC guerrilla units and NVA irregulars. Following the degradation of the VC force in the Tet Offensive, the NVA employed irregulars to maintain pressure on Saigon.[137] Although these forces were effective against ARVN and MACV units, they did not have the support of the population as the VC guerillas previously possessed.[138] Nevertheless, these irregulars were consistent with their attacks on MACV engineer and maneuver units. Throughout the campaign, enemy irregular sappers emplaced mines along the major LOCs to disrupt logistics and movement.[139] Adapting to the effectiveness of MACV

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[132] Ibid.

[133] Andrew F. Krepinevich Jr., *The Army and Vietnam* (Baltimore: Johns Hopkins University Press, 1988), 254-257.

[134] Traas, *Engineers at War*, 497.

[135] Ibid., 503.

[136] Ibid.

[137] Shaw, *The Cambodian Campaign,* 10.

[138] Ibid.

[139] Traas, *Engineers at War*, 507.

engineer breaching operations, these irregulars experimented with different employment techniques to destroy engineer M48 rollers, demonstrating their countermobility capabilities.[140]

The criminal elements of the Cambodian campaign receive less notoriety but their presence had an impact on the population. The VC militia organization was organized similarly to a contemporary criminal element, consisting of decentralized operations to exploit the population. These local guerilla units did not participate in the direct attacks with their NVA and VC main force counterparts but rather operated as guides and intelligence operatives operating against ARVN and MACV units.[141] Sabotage, assassinations of local Cambodian officials, and general terrorism on the population encompassed the remainder of their operations.[142] Additionally, the Free Khmer, Khmer Kampuchea Krom (KKK), and White Scarf Clan operated throughout Cambodia, with tactical reach inside the COSVN sanctuaries. The Free Khmer and KKK were primarily partisan political insurgents, attempting to control large sections of the population through fear and coercion.[143] The White Scarf Clan was the prevalent criminal organization, operating primarily in the Chau Doc and Kien Phong provinces.[144] Primary operations of the White Scarf Clan consisted of frequent bus robberies in the urban centers, kidnappings of notable Cambodian officials, and monetary exploitation from the rural community.[145] Their operations caused an enhanced strain and hardship on the population of the Cambodian border. Engineers

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[140] Ibid.

[141] DA Pamphlet 360-521, *Handbook for U.S. Forces in Vietnam,* 9.

[142] Ibid.

[143] Gen. Dinh Tho, *Cambodian Incursion,* 13.

[144] Ibid., 13-14.

[145] Ibid.

supporting ARVN and MACV operations would face a complex environment encompassing the hybrid threat construct.

An analysis of the major operations in the Cambodian campaign reveals how engineers through the engineer disciplines and LOEs enabled synchronized MACV and ARVN operations, combatting regular, irregular, and criminal threats. Engineers in support of the decisive operation allowed MACV to clear NVA regular units from their staging areas. These operations included support to the direct clearance of the sanctuaries in Toan Thang 42-44. Engineer effects through the shaping and sustaining operations mitigated the threat from the irregular and criminal elements, specifically during Binh Tay I-IV and general support efforts throughout the campaign. Before the initiation of combat operations, engineer priorities focused on the general engineering discipline, developing infrastructure and improving MACV's capacity to project force. This included the construction of tactical airfields, all-weather routes to support maneuver and sustainment traffic, and forward bases and logistical nodes.[146] Additionally, through the geospatial discipline, engineers generated maps and terrain products to support MACV planning efforts. Finally, during clearing operations, engineers exercising the combat engineer discipline breached and cleared routes through manmade and natural obstacles, bridged river obstacles, destroyed caches and enemy material, and improved defensive positions to mitigate the NVA and VC threat. Through these efforts, engineers supported the MACV and AVRN through the engineer LOEs of assured mobility and enhancing protection.

Engineers supporting the decisive operation of Toan Thang 42-45 facilitated the shock, tempo, and operational reach MACV and ARVN forces required to clear the NVA sanctuaries. During the AVRN led and III Corps supported Thang 42 operation into the Parrot's Beak and Angel's Wing, engineers constructed a hasty bridge across the Ben Soi River, supporting AVRN

[146] Major General Robert R. Ploger, *U.S. Army Engineers 1965-1970, Vietnam Studies – Department of the Army* (Washington, DC: Department of the Army, 2000), 176.

armor and logistical traffic.[147] This combat engineering discipline along the assured mobility LOE allowed the combined force to penetrate into Cambodia rapidly, causing significant NVA casualties, and spoiling COSVN's plan to overthrow the Cambodian government.[148] Simultaneously, engineers maintained the now open Highway 1, allowing Vietnamese refugees to move outside the conflict area.[149] By allowing refugees to escape the immediate battlefield, MACV with engineer support prevented irregular and criminal elements from using the residents as protection from coalition operations.

During Thang 43, Task Force Shoemaker's penetration into the Fishhook, engineers facilitated assured mobility through combat engineering to maintain the force's tempo and expand their operational reach. Although the initial intent of the operation was to destroy COSVN and flank the NVA force, the elusiveness of the NVA/VC headquarters caused the MACV to settle for their secondary objectives, clearing caches in the sanctuary.[150] To gain access into the sanctuaries engineers supporting the decisive operation, specifically the 1st Calvary Division, constructed hasty bridges following their destruction by retreating NVA regular forces.[151]

After the MACV force crossed into the Fishhook, units like the 31st Engineer Battalion constructed access roads and bypasses to facilitate traffic by the armored cavalry's assault vehicles and to allow transportation of captured enemy material.[152] To create these roads and access points for maneuver forces, engineers employed Rome plows to clear large segments of the jungle, as one company, the 60th Land Clearing Company cleared over 155 acres in seven

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[147] Shaw, *The Cambodian Campaign*, 53.

[148] Ibid., 55.

[149] Traas, *Engineers at War*, 491.

[150] Ibid., 492.

[151] Ibid., 496.

[152] Ibid.

days.[153] To mitigate the threat from the irregular forces, engineers also cleared suspected ambush sites, enhancing the protection of assaulting MACV forces.[154]

Once maneuver forces reached their objectives in Thang 43 and 44, engineer units were necessary to neutralize the vast amount of enemy resources in the area. After an NVA regular or VC irregular cache was located, maneuver units called engineers forward to neutralize the site. Engineers were extremely busy supporting MACV maneuver units, consistently destroying supplies, enemy fortifications, and hiding places. For example, the 984th Engineer Company supporting operations in the Fishhook destroyed over 1,100 enemy structures and cleared over 1,700 acres of jungle in June 1970.[155]

Engineers also supported the pursuit of operational objectives through the major shaping operations of the campaign, to include Binh Tay I-IV and supporting actions in Thang 41-45. The purpose of the II Corps led Binh Tay I-IV was to divert NVA focus north and cut COSVN logistics from their units in the main battle area.[156] These shaping operations facilitated the MACV's decisive operation in the sanctuaries. Supporting II Corps units, engineers developed firebases, opened landing zones, cleared routes through Cambodia, and provided combat engineer support during the maneuver assaults.[157] Additionally, to provide the AVRN an opportunity to improve their confidence in operations and to set the conditions for the sanctuary clearance, AVRN conducted Toan Thang 41 into the Angel's Wing. Engineers enabled the AVRN assault through bridge support across the Ben Soi River.[158]

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[153] Ibid., 502.

[154] Ibid.

[155] Ibid., 503.

[156] Ibid., 509.

[157] Ibid., 510.

[158] Ibid., 489.

Additional engineer shaping operations such as geospatial support and bridge demolitions enabled MACV to achieve their operational objectives against the regular and irregular threat. During planning for the Cambodian campaign, terrain analysis was essential to forecast a feasible course of action. Engineer geospatial support in the form of the 547th Map Depot Platoon and 66th Topographic Engineer Company developed and issued over 685,000 maps with detailed terrain analysis to enable MACV units and planners a product to plan operations.[159] Terrain analysis of the Fishhook, Dog's Head, and Angel's Wing proved essential in enabling MACV to achieve their decisive operation. Furthermore, the demolition of the Eiffel Bridge, spanning 272 feet across the Kompong Spean River denied the NVA regular and irregular forces access to South Vietnam, allowing MACV to isolate COSVN in Cambodia.[160]

Throughout the campaign, engineers supported MACV sustaining operations to enable the decisive and shaping operation's success. Through these efforts, they also indirectly mitigated the threat of the irregular forces and criminal elements in the area of operation. Major sustaining operations included countermobility on MACV routes, building bridges to allow access to markets, and general engineering construction in support of the Cambodian civilian population. As communist irregular forces attempted to disrupt MACV operations and main supply routes (MSRs), engineers began emplacing claymores as improvised obstacles along major infiltration lanes.[161] In addition to causing casualties on the irregular force, this technique helped protect the major supply movements into the sanctuaries. To support the civilian population and mitigate coercion from the criminal and irregular threats, engineers constructed bridges to support civilian economic traffic. For example, engineers constructed a bridge and causeway in Tam Quan village

[159] Ibid., 504.

[160] Ibid., 506.

[161] Ibid., 502

to allow local fishermen access to an offshore island and local markets.[162] Finally, in restoring normalcy to the affected civilian population, engineers constructed new medical clinics, community structures, and returned captured rice to the civilian population.[163] Engineer efforts to construct and maintain MSRs, build bridges, and develop civilian infrastructure allowed MACV to exercise influence over the civilian population, preventing exploitation from the criminal elements that preyed on the weak and dislocated.

Engineers conducting simultaneous actions to support the operational end state was never more evident than in the Cambodian campaign. Engineers supported the campaign in the decisive operation to defeat COSVN and seize material. During shaping operations, engineers supported II Corps to disrupt COSVN logistics and divert focus from the main effort. To help sustain the campaign, engineers developed infrastructure, enabling MACV to project combat power and preserve the tempo of operations. To accomplish this amazing feat of effort, MACV required engineer integration throughout the force. Integration of engineers facilitated synchronized actions on multiple detailed operations simultaneously across the area of operations. The engineer disciplines of combat, general, and geospatial were evident throughout the campaign and all major operations. Engineers also facilitated the operational end state through the engineer LOEs. Clearing routes, breaching obstacles, bridging rivers, and cache destruction were actions through the assured mobility LOE. Developing firebases, fortifications, and countermobility efforts encompassed the enhancing protection LOE. Enabling the projection of combat power and logistics was evident during the general engineering projects, such as roads, airfields, and logistical nodes. Finally, engineers facilitated the building partner capacity LOE through their support of AVRN during Thong 41 and general support efforts through the combined force.

[162] Ibid., 513.

[163] Shaw, *The Cambodian Campaign*, 130.

Engineers were essential in combatting the hybrid threat in and around the Cambodian campaign. Engineers supporting the decisive operation of Thang 42-45 directly contributed to the defeat and subsequent withdrawal of NVA regular forces. Engineers mitigated the threat of VC and NVA irregular forces through engineer mobility and countermobility actions. Additionally, during sustaining operations, engineer support to the Cambodian population indirectly prevented the criminal elements from coercing the population during the campaign. As engineer support was required in all operations, the effect of synchronized and integrated engineer efforts in the Cambodian campaign proved essential in combatting the hybrid threat and allowing MACV to achieve their operational end state.

This section focused on significant engineer contributions combatting the hybrid threat in the Cambodian campaign of 1970. With a background in the strategic context, this section outlined the Cambodian hybrid threat construct and synthesized engineer actions through the decisive-shaping-sustaining framework. Engineers, supporting operations through the engineer disciplines and LOEs, enabled MACV and AVRN to conduct synchronized and simultaneous actions against regular, irregular, and hybrid threats. Analyzing engineer actions through the decisive-shaping-sustaining framework demonstrated the effect of engineer actions in supporting the pursuit of the operational end state and defeating the Cambodian hybrid threat.

Conclusion: Military Engineering towards The Hybrid Threat

According to current doctrine, the hybrid threat construct is the most likely enemy template for future US military opposition. Although there is an abundance of secondary works and doctrinal publications supporting this declaration, there is a lack of specificity on how functional branches can contribute to this complex fight of tomorrow. This monograph began with a declaration that the hybrid threat construct is not a new nature of warfare but rather a continuity that has occurred in the past. That argument formed the basis for a historical analysis on two periods of history that encompassed similar facets of the theoretical construct, the Korean

War and Cambodian Campaign. Selection of these periods had the potential to reveal engineer synchronized actions against a hybrid threat. Although little historical evidence exists suggesting that all three elements can operate simultaneously and in concert, a period with all three operating in the same area may highlight potential engineer actions. The true form of the hybrid threat may not be feasible; as a recent article argues, "…by arguing that individual units can somehow simultaneously switch back and forth between conventional, irregular, and criminal activities elevates the enemy to mystical status."[164] However, a review of historical constructs that are similar may reveal a collection of continuities or universal lessons that operational planners can use for solving contemporary complex problems against hybrid threats. As Gaddis states, "by continuities, I mean patterns that extend across time…phenomena that recur with sufficient regularity to make themselves apparent to us."[165]

Returning to the question originally introduced, can military engineers support operations in a hybrid threat environment through synchronized and simultaneous actions? Although many may affirm this assertion, a qualitative assessment is required for military practitioners to support its relevance. Through two relevant periods, this monograph sought to answer this question using the decisive-shaping-sustaining framework as a methodology to analyze engineer actions against a hybrid threat. Through campaign research using the operational framework methodology, the engineer disciplines and LOEs were apparent. The engineer disciplines of combat, general, and geospatial were evident during those periods against all three elements of the hybrid threat, either directly or indirectly. The engineer LOEs of assured mobility, enhancing protection, enabling force projection and logistics, and building partner capacity and developing infrastructure

[164] Dan Cox, Thomas Bruscino, and Alex Ryan, "Why Hybrid Warfare Is Tactics Not Strategy: A Rejoinder to "Future Threats and Strategic Thinking"," *Infinity Journal* 2, no. 2 (Spring 2012): 25.

[165] John Lewis Gaddis, *The Landscape of History: How Historians Map the Past* (Oxford: Oxford University Press, 2004), 30.

represented the cumulative effects of engineer effort throughout the periods.[166] Finally, this monograph argued that engineer actions could support the pursuit of the operational end state in the hybrid environment, through synchronization and simultaneity.

Concluding this monograph with a review of the findings is appropriate to recap the contributions of military engineers. First, through the Korean War and Cambodian campaign the decisive-shaping-sustaining framework revealed a pattern of engineers combatting the different elements of the hybrid threat. The focus of decisive operations was on defeating the regular threat, the shaping operations on the irregular threat, and sustaining operations on mitigating the effects of the irregular or criminal threat. Second, a few elements of operational art are evident when analyzing engineer actions in the hybrid environment. This demonstrates that engineers, through their actions, assisted in the pursuit of the operational and strategic end state, revealing an enabling component of operational art. Third, a holistic view of each period revealed the synchronized and simultaneous actions of engineers throughout the battlefield, a requisite for a force operating against this construct. Finally, this monograph points to some implications for operational planners as they confront future challenges associated with hybrid threats. In the Korean War, engineers supported the decisive, shaping, and sustaining operations of the major campaigns conducted in the conflict, to include Operation Chromite, the UN offensive to the Yalu River, and the retrograde during the PRC offensives. Combat engineering tasks, such as breaching obstacles, bridging rivers, and destroying bridges, enabled the UN's decisive operation, specifically focused on combatting the regular KPA and CPV threats. During shaping operations, engineers supporting through the combat and general engineering discipline executed supply denial, constructed and protected roads, bridges, and railways in the rear areas. In conjunction with the employment of local labor, these actions indirectly mitigated the irregular and criminal threat in UN's area of operations. Finally, general engineer support through the sustaining

[166] FM 3-34, *Engineer Operation*, iv.

operations managed the construction of infrastructure to support UN operations and the civilian population. These actions enabled UN force projection and logistics, as well as safeguarded the population from the coercion of irregular and criminal elements. Synthesis from this approach reveals that engineers enabled synchronized actions in support of the decisive operation against the regular conventional threat, constructed and protected infrastructure in the wake of an irregular threat, and assisted in refugee management to help mitigate criminal activity.

During the Cambodian campaign, engineers supported the decisive, shaping, and sustaining operations, spanning Thang 41-45 and Binh Tay I-IV. Combat engineering actions, such as breaching, cache destruction, jungle clearance, and bridging enabled MACV to combat the NVA regular and VC irregular threat in the decisive operation. Combat, general, and geospatial support was evident during the campaign's shaping operations, which included bridging, bridge demolition, and geospatial analysis. Although these actions did not focus exclusively on the irregular threat like the Korea War case study, they were oriented towards the combined NVA and VC threat in II Corps' area of operation and enabled the III Corps' decisive operation in the Fishhook area. Combat and general engineering support during sustaining operations included bridge construction in support of the population, construction and security of major LOCs, and infrastructure development that mitigated the threat of irregular and criminal elements operating in the area. Similar to the Korean case study, the integration of engineers throughout MACV's task organization and supporting AVRN operations reveals the synchronized and simultaneous effects of engineers operating against a hybrid threat.

A review of these case studies highlights that engineer actions were both synchronized and occurring simultaneously throughout the battlefield. Integration of engineer actions in the decisive, shaping, and sustaining operations is a necessity to achieve unity of effort and maximize combat power at the decisive place and time. In addition, just as hybrid threats can cause multiple dilemmas to the friendly force with simultaneous actions across the battlefield, engineers are required to help mitigate that threat and enable the achievement of the desired end state.

Simultaneous and layered engineer effects across the area of operation will help mitigate the unforeseen issues arising from a hybrid threat combatant. The engineer disciplines and LOEs span the breadth of potential operations. Allocating engineer support to assist in the fight against regular, irregular, and criminal elements appears to be a necessity in achieving the operational and strategic end state.

Operational artists attempt to link tactical actions in time, space, and purpose to achieve the strategic objectives. Planning for conventional operations is difficult enough without adding the complexity of irregular and criminal elements operating together. Integrating and synchronizing actions of each functional branch and warfighting function against a hybrid threat can be an arduous task for military planners. However, as this monograph argues, engineers are a necessity on the battlefield, especially against hybrid threats. On the operational level, engineers facilitate the operational reach, basing, and tempo of the friendly force. Resourcing engineers throughout the operational framework will enable the friendly force to mitigate the effects of terrain, facilitate assured mobility for the force, enhance their protection, enable force projection and logistics, and build partner capacity.

Engineers can also mitigate the effects of unforeseen conditions that emerge in a conflict. For example, in a peer-competitor scenario, planners may anticipate conventional operations with regular forces but their success may cause the emergence of a hybrid construct. Irregular forces may emerge to counter the conventional power of US forces, presenting an asymmetric threat. In the Korean War case study, following the defeat of the NVA regular force they dispersed to form irregular units to disrupt UN operations in North Korea. Additionally, ungoverned areas typically emerge throughout the battlefield, providing criminal elements an opportunity to exploit power vacuums, as evident in both case studies. These criminals may act in concert with the regular and irregular forces but alternatively may act in accordance with their own preferences and goals. However, planners cannot anticipate every change in the operational environment. Thus,

allocating reserve engineer support in the planning phase may assist the commander and staff surge if there is an emergence resembling a hybrid threat.

The hybrid threat environment poses numerous challenges for the future force. Engineers are capable of supporting operations against regular, irregular, and criminal elements operating in concert or separately on the battlefield. Furthermore, military engineers are suitable for synchronized and simultaneous actions against hybrid threats, as decentralization permeates the engineer lexicon. Incorporating engineer effects against a hybrid threat and through the application of operational art will support commanders in achieving their desired end state.

Bibliography

Appleman, Roy E. *East of Chosin: Entrapment and Breakout in Korea, 1950 (Williams-Ford Texas Aandm University Military History Series)*. College Station: Texas A&M University Press, 1990.

Armstrong, Frank H. The 1st Cavalry Division and Their 8th Engineers in Korea: America's Silent Generation at War. South Burlington, VT: Bull Run of Vermont, 1997.

Army Doctrine Publication 3-0, *Unified Land Operations*. Washington, DC: Government Printing Office, 2011.

Army Doctrine Reference Publication 3-0, *Unified Land Operations*. Washington, DC: Government Printing Office, 2011.

Blair, Clay. *The Forgotten War: America in Korea, 1950-1953*. New York: Anchor Books, 1987.

Boenisch, Jeremiah. "The Cambodian Incursion: A Hard Line for Change." Military History Online. Accessed April 05, 2015. http://www.militaryhistoryonline.com/vietnam/articles/cambodianincursion.aspx.

Bruscino, Jr. Thomas A. *Global War On Terrorism Occasional Paper 17: Out of Bounds Transnational Sanctuary in Irregular Warfare*. Fort Leavenworth, KS: Combat Studies Institute Press, 2006.

Clausewitz, Carl von. *On War*. Edited and translated by Michael Howard and Peter Paret. Princeton, NJ: Princeton University Press, 1989.

Cox, Dan, Thomas Bruscino, and Alex Ryan. "Why Hybrid Warfare Is Tactics Not Strategy: A Rejoinder to "future Threats and Strategic Thinking"." *Infinity Journal* 2, no. 2 (Spring 2012): 25-29.

Davis, Richard G., ed. Cmh Pub. Vol. 70-111-1, *The U.S. Army and Irregular Warfare, 1775-2007: Selected Papers from the 2007 Conference of Army Historians*. Washington, DC: Center of Military History, United States Army, 2008.

Department of the Army Pamphlet 360-521, *Handbook for U.S. Forces in Vietnam*. Washington, DC: US Government Printing Office, Department of Defense, 1966.

Farquhar, William R., and Henry A. Jeffers. *Bridging the Imjin: Construction of Libby and Teal Bridges During the Korean War (October 1952 - July 1953, Studies in Military Engineering 5)*. Fort Belvoir, VA: Office of History, U. S. Army Corps of Engineers, 1989.

Field Manual 3-34, *Engineer Operations*. Washington, DC: Government Printing Office, 2014.

Fowle, Barry W., John C. Lonnquest (editors). *Remembering the "Forgotten War": US Army Engineer Officers in Korea*. Alexandria, VA: U. S. Army Corps of Engineers, 2005.

Gaddis, John Lewis. *The Landscape of History: How Historians Map the Past*. Oxford: Oxford University Press, 2004.

Graff, David A., and Robin Higham, eds. *A Military History of China*. updated ed. Lexington, KY: The University Press of Kentucky, 2012.

Hillstrom, Kevin. *Vietnam War: Almanac (Vietnam War Reference Library).* Farmington Hills, MI: The Gale Group, 2000.

Hoffman, Frank G. "Conflict in the 21st Century: The Rise of Hybrid Wars." Monograph, Potomac Institute for Policy Students, 2007.

——— "Hybrid Warfare and Challenges", *Joint Forces Quarterly*, Issue 52 (January 2009): 34-39.

——— "Hybrid Threats: Neither Omnipotent Nor Unbeatable", *Orbis Volume 54*, Issue 3 (Summer 2010): 441-455.

Huber, Thomas. "Compound Warfare: A Conceptual Framework," in *Compound Warfare: That Fatal Knot*, ed. Thomas M. Huber. Fort Leavenworth, KS: US Army Command and General Staff College Press, 2002.

Kalyvas, Stathis N. *The Logic of Violence in Civil War*. Cambridge: Cambridge University Press, 2006.

Krepinevich, Andrew F. *The Army and Vietnam*. Baltimore, MD: Johns Hopkins University Press, 1988.

Marshall, S.L.A. *Battle at Best*. New York: Pocket Books, 1964.

Millett, Allan R. *The War for Korea, 1950-1951: They Came from the North*. Lawrence, KS: University Press of Kansas, 2010.

Moyar, Mark. *A Question of Command: Counterinsurgency from the Civil War to Iraq*. New Haven, CT: Yale University Press, 2009.

Murray, Williamson, and Peter R. Mansoor, eds. *Hybrid Warfare: Fighting Complex Opponents from the Ancient World to the Present*. Cambridge: Cambridge University Press, 2012.

Ney, Virgil Colonel. *Notes on Guerrilla War: Principles and Practices*. Washington, DC: Command Publications, 1961.

Ploger, Robert R. Major General. *U.S. Army Engineers 1965-1970, Vietnam Studies – Department of the Army*. Washington, DC: Department of the Army, 2000.

Sandler, Stanley *The Korean War: No Victors, No Vanquished*. Lexington: The University Press of Kentucky, 1999.

Shaw, John M. *The Cambodian Campaign: the 1970 Offensive and America's Vietnam War*. Lawrence: University Press of Kansas, 2005.

Shawcross, William. *Sideshow: Kissinger, Nixon, and the Destruction of Cambodia*. Revised ed. New York: Cooper Square Press, 2002.

Sorley, Lewis. *A Better War: the Unexamined Victories and Final Tragedy of America's Last Years in Vietnam*. New York: Harvest, 2007.

Tho, Brig. Gen. Tran Dinh. *Cambodian Incursion (Indochina Monographs)*. Washington, DC: Center of Military History, United States Army, 1997.

Tolson, John. *Vietnam Studies: Air Mobility 1961-1971*. Washington DC: Department of the Army, 1973.

Traas, Adrian G. *Engineers at War*. Washington, DC: Center of Military History, United States Army, 2010.

Training Circular 7-100, *Hybrid Threat*. Washington, DC: Government Printing Office, 2010.

Westover, Captain John G. *Combat Support in Korea*. Washington, DC: Center of Military History, United States Army, 1987.

Willbanks, James H., ed. *Vietnam War: the Essential Reference Guide*. Santa Barbara, CA: ABC-CLIO, 2013.